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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,853	03/15/2001	Edward R. Wittke		5240

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EXAMINER

JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
2643	4

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,853

Applicant(s)

WITTKE ET AL.

Examiner

Alexander Jamal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim 1,2,4,5,7,15,16,18** rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (5526421), and further in view of Matouk et al (5625684).

As per **claim 1**, Berger discloses a device for a telephone (Fig. 1) comprising an electrical voice transmission system and an electrical transmission line (elements 13,21,23 in Fig. 2). The device further comprises microphone 13 (Fig. 1) to pickup voice and deliver it to a transmission line. The device further comprises remote transmission block 22 (Fig. 2, Col 2 lines 47-55). The device further comprises speakers 14 near microphone 13 for providing a voice cancellation sound (Fig. 1, Col 2 lines 47-55), and signal processor 20 (Fig. 2) that receives an input from the transmission line (from telephone mouthpiece 13). It provides output to speakers 14 (Fig. 2) to generate a voice cancellation sound (Col 2 line 63 to Col 3 line 7). However, Berger does not disclose that the processor outputs a signal to a modulator (being located before the modulator in the downstream direction) to subtract the electrical voice cancellation sound that is picked up by the microphone.

Matouk teaches a system of active noise suppression in which environmental noise at a callers telephone is detected and a cancellation signal is generated by a processor to subtract (using modulator 52) the noise from the signal received by the recipient of the call (Col 1 line 54 to Col 2 line 6). The 'noise' mentioned by Matouk is any signal besides the direct speech from the caller to the handset microphone. The 'voice cancellation sound' being output in Berger's device would be considered 'noise' by the telephone handset microphone as it did not come directly from the caller. As such, it would have been obvious to one of ordinary skill in the art at the time of this application to use the detected noise signal (the voice cancellation signal is 'detected' by the signal processor) to cancel out the noise from the signal being sent to the recipient (called party) for the purpose of improving the called party's ability to understand the caller's voice.

As per **claim 18**, claim rejected for the same reasons as rejection of claim 1. The device discloses in the claim 1 rejection will perform the method of claim 18.

As per **claim 2**, Berger's device comprises a set of speakers 14 (Fig. 1, Col 2 lines 47-55) to provide voice cancellation sounds.

As per **claim 4**, Berger's device comprises far field sensor 18 (Fig. 1, Col 2 lines 47-55) that is more remote from microphone 13 than speakers 14 as seen in Figure 1.

As per **claim 5**, Matouk's noise detection system includes an additional environmental sensor 46 near speaker 37 (Fig. 1) to pickup any additional environmental

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noises (Col 2 lines 55-64). This sensor, in combination with Berger's sensor comprise a set of sensors that are more remote from the handset microphone than the error signal generating speaker.

As per **claim 7**, Berger's device comprises a set of speakers 14 (Berger: Fig. 1, Col 2 lines 47-55) to provide voice cancellation sounds near microphone 13 (Berger: Fig. 1). Berger's device also comprises far field sensor 18 (Berger: Fig. 1, Col 2 lines 47-55) that is more remote from microphone 13 than speakers 14 as seen in Figure 1. Matouk's noise detection system includes an additional environmental sensor 46 near speaker 37 (Matouk: Fig. 1) to pickup any additional environmental noises (Matouk: Col 2 lines 55-64). This sensor, in combination with Berger's sensor comprise a set of sensors that are more remote from the handset microphone than the error signal generating speaker.

As per **claims 15,16**, Berger discloses an additional speaker 32 (Fig. 4 Col 3 lines 8-16) that is near microphone 33, and is for delivering voice (as it was spoken by the caller) into the microphone 33 (as is done in normal telephone operation). Examiner takes official notice that it is well known in the art that telephone earpieces deliver voice (spoken by the caller) to the caller (commonly known as sidetone) for the purpose of allowing the caller to better hear his voice while speaking on the phone.

3. Claims 3,6,8,17,19,20 rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (5526421) and Matouk et al. (5625684) as applied to claims 1,2,4,5 and further in view of Ponsgen (4006308).

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As per **claims 3,6,8**, Berger and Matouk disclose applicant's claims 1,2,4,5, but do not specify arranging the voice cancellation speakers and far-field sensors (microphones) respectively each in a spherical pattern about the handset microphone.

Ponsgen teaches that a spherically shaped speaker arrangement will offer a more natural reproduction of the original sound signal (Col 2 lines 25-46). A 'spherically-shaped' speaker arrangement is shown in Ponsgen Fig. 8. Two hemisphere's could be combined together to form a spherical shape (Col 5 lines 25-35). The use of cancelling speakers (BERGER: item 14 Fig. 2) and noise sensors (MATOUK: Fig. 3 sensor 41) is already disclosed. It would have been obvious to one of ordinary skill in the art at the time of this application to arrange the voice cancellation speakers in a spherical pattern around their source (the handset microphone) for the purpose of producing a more natural reproduction of the original sound. In addition, it would have been obvious to one of ordinary skill in the art at the time of this application to implement an array of sensors in a similar arrangement (in a spherical pattern) as the voice cancellation speakers for the purpose of more accurately detecting the sound being produced by the speakers that are already in a spherical arrangement.

As per **claim 19**, claim rejected for the same reasons as rejection of claims 3,6,8. The device disclosed in the claim 3 rejection will perform the method of claim 19.

As per **claims 17,20** claims rejected for same reasons as claims 3,15,16,19.

4. **Claims 9,10,12,13** rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (5526421), and further in view of Matouk et al (5625684).

As per **Claim 9**, Berger discloses a device for attachment to a telephone handset (Col 3 lines 21-33) comprising remote transmission block 22 (Fig. 2, Col 2 lines 47-55) that inherently comprises a modulator for the purpose of adapting the voice signal for transmission to a communications network via the electrical transmission line. He also discloses speakers 46 (Fig. 5) near microphone 13 (Fig. 1) for providing a voice cancellation sound (Fig. 1, Col 2 lines 47-55). He also discloses signal processor 20 (Fig. 2) (also part of Electrical components 44 in Fig. 5) that receives an input from the transmission line (from telephone mouthpiece 13). It provides output to speakers 46 (Fig. 5) to generate a voice cancellation sound (Col 2 line 63 to Col 3 line 7). However, Berger does not disclose that the processor also outputs a signal to the modulator (being located before the modulator in the downstream direction) to subtract the electrical voice cancellation sound that is picked up by the microphone.

Matouk teaches a system of active noise suppression in which environmental noise at a callers telephone is detected and a cancellation signal is generated by a processor to subtract the noise from the signal received by the recipient of the call (Col 1 line 54 to Col 2 line 6). The 'noise' mentioned by Matouk is any signal besides the direct speech from the caller to the handset microphone. The 'voice cancellation sound' being output in Berger's device would be considered 'noise' by the telephone handset microphone as it did not come directly from the caller. As such, it would have been obvious to one of ordinary skill in the art at the time of this application to use the detected

noise signal (the voice cancellation signal is 'detected' by the signal processor) to cancel out the noise from the signal being sent to the recipient (called party) for the purpose of improving the called party's ability to understand the caller's voice.

As per **claim 10**, Berger's device comprises a set of speakers 46 (Fig. 5, Col 2 lines 47-55) to provide voice cancellation sounds.

As per **claim 12**, Berger's device comprises far field sensor 43 (Fig. 5, Col 2 lines 47-55, Col 3 lines 5-36) that is more remote from microphone 13 than speakers 14 as seen in Figures 1 and 5.

As per **claim 13**, Matouk's noise detection system includes an additional environmental sensor 46 near speaker 37 (Matouk: Fig. 1) to pickup any additional environmental noises (Matouk: Col 2 lines 55-64). This sensor, in combination with Berger's sensor comprise a set of sensors that are more remote from the handset microphone than the error signal generating speaker.

5. Claims 11,14 rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (5526421) and Matouk et al. (5625684) as applied to claims 9,10,12,13 and further in view of Ponsgen (4006308).

As per **claims 11,14**, Berger and Matouk disclose applicant's claims 9,10,12,13 but do not specify arranging the voice cancellation speakers and far-field sensors (microphones) respectively each in a spherical pattern about the handset microphone.

Pongsen teaches that a spherically shaped speaker arrangement will offer a more natural reproduction of the original sound signal (Col 2 lines 25-46). It would have been obvious to one of ordinary skill in the art at the time of this application to arrange the voice cancellation speakers in a spherical pattern around their source (the handset microphone) for the purpose of producing a more natural reproduction of the original sound. In addition, it would have been obvious to one of ordinary skill in the art at the time of this application to position the far-field sensors in a similar arrangement (in a spherical pattern) as the voice cancellation speakers for the purpose of more accurately detecting the sound being produced by the speakers.

Response to Arguments/Amendment

6. Applicant's arguments with respect to **claims 1-8,15-20** have been considered but are moot in view of the new ground(s) of rejection.
7. Applicant's arguments with respect to **claims 9-14** filed March 2, 2004 have been fully considered but they are not persuasive.

As per **claims 9,10,12,13**, the applicant argues (argument: Page 12) that Berger does not provide a signal processor that receives input from a transmission line before a modulator to generate a voice cancellation sound. The Berger reference relies on the teachings of Matouk to implement the processor that receives an input from the

transmission line before the modulator. The Berger reference processes the waveform received from telephone mouthpiece 13 (BERGER: Fig. 2). Matouk teaches providing further processing in that the detected noise is adaptively filtered and then subtracted out (MATOUK: Fig. 3) using modulator 52. Since Berger discloses that the processor receives a signal from the telephone mouthpiece 13 (BERGER: Fig. 2), then the combination of Berger and Matouk would have the processor still receiving the signal from the telephone mouthpiece (in order to process and send it to the cancellation speakers). This mouthpiece is analogous to microphone 36 (MATOUK: Fig. 3) and as such the processor would receive an input from the transmission line before the modulator 52.

On Page 13 of the arguments applicant states that “Matouk does not teach a system of active noise suppression in which environmental noise at a callers telephone is detected and a cancellation signal is generated by a processor to subtract the noise from the signal received by the recipient of the call”. Examiner disagrees with this statement as providing a clean transmission signal to a telephone call recipient is one of the primary elements of Matouk’s invention (MATOUK: ABSTRACT, Col 1 lines 1-60, Col 3 lines 1-52). The generation of a noise canceling sound is an additional feature that **may** be implemented **if desired** (MATOUK: Col 4 lines 38-45) but is not essential. The ‘noise’ detected by MATOUK’s teachings would be the ‘voice cancellation signal’ generated by the invention of Berger.

On Page 13 of the arguments the applicant states that the combination of Matouk and Berger would destroy the functionality of Berger. This is not true. Matouk’s ‘noise

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cancellation feature' that may be implemented at the caller's end and would cancel out Berger's functionality is an additional embodiment that may be applied if desired (MATOUK: Col 4 lines 38-46). It is not essential to the embodiment shown in Matouk Fig. 3.

As per **claims 11,14**, the argument on pages 13 and 14 states that Ponsgen does not teach a set of far field sensors to generate error signals (noise signals) or to use a spherically shaped speaker arrangement. Ponsgen teaches that a spherically shaped speaker arrangement will offer a more natural reproduction of the original sound signal (Col 2 lines 25-46). A 'spherically-shaped' speaker arrangement is shown in Ponsgen Fig. 8. Two hemisphere's could be combined together to for a sphereical shape (Col 5 lines 25-35). The use of canceling speakers (BERGER: item 14 Fig. 2) and noise sensors (MATOUK: Fig. 3 sensor 41) is already disclosed. Examiner contends that sufficient motivation is provided by Ponsgen (Col 2 lines 25-46) to motivate one skilled in the art to implement an array of sensors and speakers arranged in a spherical shape in the device disclosed by Berger in view of Matouk.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

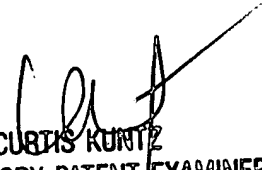
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ
May 24, 2004


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
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